



Dart Aerospace Ltd.  
1270 Aberdeen St  
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Canada

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Fax 613 632-5246

**D205-634-041**  
**Job Sheet 184821**



Part No: D205-634-041

Job Qty: 1 ea

Part Name: Replacement Skidtube with Standard Wearplates Fits LH or RH



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 10/17/18

Job Tracking No:

Due Date: 11/9/18

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG D2580 REV H SHEETS 1,2,3,8 IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30 KJ IPP Rev P 10.02.19 per PAR09-043 EC verified by:DD IPP Rev. O 06.02.28 Added paperwork EC IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM IPP Rev:Q 10.12.01 as per chg003 DD ver:EC IPP REV:R 12.01.23 AS PER ECN11-684 VERF:EC IPP REV:S 17.12.08 REMOVE GASKET AS PER INTUITIVE INFO DD VERF:JFS

Ship Via:

### Bill of Materials

### Job Routing

| Op No | Operation          | Qty   | Start Date | Due Date | Standard  |         | Workcenter/Supplier   |           | Sign-off |
|-------|--------------------|-------|------------|----------|-----------|---------|-----------------------|-----------|----------|
|       |                    |       |            |          | Setup Hrs | Run Hrs | Workcenter / Supplier | Lead Time |          |
| 90    | Start up Operation | 1 Ea  | 11/9/18    | 11/9/18  | 0.00      | 0.00    | Start Up Skidtubes    |           |          |
| 110   | CNC Bend Skidtubes | 1 pcs | 11/9/18    | 11/9/18  | 0.00      | 0.65    | CNC Bend Skidtube     |           |          |
| 120   | Skidtubes          | 1 pcs | 11/9/18    | 11/9/18  | 0.00      | 2.89    | Skidtubes-2           |           |          |
| 130   | QC                 | 1 pcs | 11/9/18    | 11/9/18  | 0.00      | 0.00    | QC5                   |           |          |
| 140   | Skidtubes          | 1 pcs | 11/9/18    | 11/9/18  | 0.00      | 2.89    | Skidtubes-2           |           |          |
| 150   | QC                 | 1 pcs | 11/9/18    | 11/9/18  | 0.00      | 0.00    | QC10                  |           |          |
| 160   | QC                 | 1 pcs | 11/9/18    | 11/9/18  | 0.00      | 0.00    | QC5                   |           |          |
| 170   | HandFinish         | 1 pcs | 11/9/18    | 11/9/18  | 0.00      | 1.31    | HandFinish1           |           |          |
| 180   | Powdercoat         | 1 pcs | 11/9/18    | 11/9/18  | 0.00      | 0.34    | Powdercoat1           |           |          |
| 190   | QC                 | 1 pcs | 11/9/18    | 11/9/18  | 0.00      | 0.00    | QC3                   |           |          |
| 200   | HandFinish         | 1 pcs | 11/9/18    | 11/9/18  | 0.00      | 1.31    | HandFinish4           |           |          |
| 210   | QC                 | 1 pcs | 11/9/18    | 11/9/18  | 0.00      | 0.00    | QC5                   |           |          |
| 220   | Packaging          | 1 pcs | 11/9/18    | 11/9/18  | 0.00      | 0.00    | Packaging3-1          |           |          |
| 225   | DC                 | 1 pcs | 11/9/18    | 11/9/18  | 0.00      | 0.00    | DC                    |           |          |
| 230   | QC21-FG            | 1 Ea  | 11/9/18    | 11/9/18  | 0.00      | 0.00    | QC21                  |           |          |

Part Op 110 - 1-Bend as per program D2580.C on CNC Bender and Folio 16 2-Cut tubes as per Dwg. D2580 3- scribe batch# in Descriptions: aft end of tube

120 - 1- Deburr ends and remove bending marks 2- Prepare tube for welding as per QSI 004

140 - 1-Weld step D2576 as per Dwg. D2580 and QSI 004 2-Grind welds on step as per Dwg D2580 3- Insert D4202-1 spacer, swage as per QSI002 and trim/ grind flush per QSI002 and dwg. Hold x-bolt with DT9701 Use tube expander 1/2 x17G to start expansion and finish with 1/2 x 18G to achieve dwg dimention. 4-Drill holes for wearplates using DT 8217 & DT8937, 7.40" from most fwd saddle holes (ref only) Open holes to 19/64", adjust stopper not to hit web. Deburr 5-Drill pilot holes for aft cap using DT 8215 Open holes to 0.208". Deburr 6-Drill pilot holes for Tow ring using DT8091, open to .640" and Deburr

170 - Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.

180 - START TIME: 8:45 OVEN TEMPERATURE: 300 FINISH TIME: 9:15

200 - 1-Install inserts & wearplates as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates A/R Sikaflex-291 MBS 913 Sikaflex expire date: 1/9/20 2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580 3-Inspect for foreign object per QSI 024 4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive A/R Sikaflex-291 MBS 913 Sikaflex expire date: 1/9/20

5-Wing Walk as per Dwg D2580 and QSI 005 4.4 Batch: MBS 913

210 - Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024



DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                              |  |
| Date : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Step #: _____                                                                                                                                                                      | QTY Effective : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | MRB (QSI042) Approval                        |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                    | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | Completed By                                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | Lead hand / Supervisor Approval Verification |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | QC / QA Coordinator Approval                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                              |  |
| <b>Root Cause</b><br><div style="display: flex;"> <div style="flex: 1;">           Environment <input type="checkbox"/><br/>           Design <input type="checkbox"/><br/>           Doc/Data <input type="checkbox"/><br/>           Equip/Tooling <input type="checkbox"/><br/>           Handling/Pre <input type="checkbox"/><br/>           Material <input type="checkbox"/><br/>           Internal Transport <input type="checkbox"/><br/>           Tribal Knowledge <input type="checkbox"/><br/>           LOA <input type="checkbox"/><br/>           Substation <input type="checkbox"/><br/>           Past Expiry Date <input type="checkbox"/><br/>           Misidentified <input type="checkbox"/> </div> <div style="flex: 1;">           No Re-verification <input type="checkbox"/><br/>           Operator <input type="checkbox"/><br/>           Offset/Setup <input type="checkbox"/><br/>           Supplier <input type="checkbox"/><br/>           Training <input type="checkbox"/><br/>           Use for Testing <input type="checkbox"/><br/>           Poor Information <input type="checkbox"/><br/>           Rushing <input type="checkbox"/><br/>           Product Improvement <input type="checkbox"/><br/>           Process Improvement <input type="checkbox"/><br/>           Manufacturing Process <input type="checkbox"/><br/>           Past Due <input type="checkbox"/> </div> </div> |                                                                                                                                                                                    | <b>FAULT CATEGORY</b><br><div style="display: flex;"> <div style="flex: 1;">           Pressure/Forced <input type="checkbox"/><br/>           Bending <input type="checkbox"/><br/>           Centre Not Concentric <input type="checkbox"/><br/>           Cracks <input type="checkbox"/><br/>           Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>           Cuffs <input type="checkbox"/><br/>           Crushing <input type="checkbox"/><br/>           Heat Treat <input type="checkbox"/><br/>           Wave/Twist in Tube <input type="checkbox"/><br/>           Marks/Chatter <input type="checkbox"/> </div> <div style="flex: 1;">           Temperature/Cure <input type="checkbox"/><br/>           Set-up <input type="checkbox"/><br/>           BOM/Route <input type="checkbox"/><br/>           Broken/Damage/Defect <input type="checkbox"/><br/>           Inspection Incomplete/Unqualified <input type="checkbox"/><br/>           Contamination <input type="checkbox"/><br/>           Countersink <input type="checkbox"/><br/>           Cut Too Short <input type="checkbox"/><br/>           Instructions Incomplete/Unclear <input type="checkbox"/><br/>           Drill Holes <input type="checkbox"/> </div> <div style="flex: 1;">           Power Loss/Surge <input type="checkbox"/><br/>           Folio/Program <input type="checkbox"/><br/>           Grain <input type="checkbox"/><br/>           Weld <input type="checkbox"/><br/>           Wrong Stock Pulled <input type="checkbox"/><br/>           Out of Sequence <input type="checkbox"/><br/>           Off-set <input type="checkbox"/><br/>           Mislabeled <input type="checkbox"/><br/>           Fit/Function <input type="checkbox"/><br/>           Misaligned/off center <input type="checkbox"/> </div> <div style="flex: 1;">           Positioned Wrong <input type="checkbox"/><br/>           Outside Dimensions <input type="checkbox"/><br/>           Over/Under tolerance <input type="checkbox"/><br/>           Part Incorrect <input type="checkbox"/><br/>           Part Lost/Missing <input type="checkbox"/><br/>           Part Moved <input type="checkbox"/><br/>           Drawing <input type="checkbox"/><br/>           Finish <input type="checkbox"/><br/>           Misread <input type="checkbox"/><br/>           Turning Sequence <input type="checkbox"/> </div> </div> |  |                                              |  |
| OTHER : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                              |  |



### Job BOM

| Part / Item   | Component Name          | Quantity      | Operation             | Container |
|---------------|-------------------------|---------------|-----------------------|-----------|
| D2580-1       | 205 Bent Tube           | 1 Ea (1 ea)   | 90-Start up Operation | 5120873   |
| D2576-3       | Step (Machining Detail) | 1 Ea (1 ea)   | 140-Skiddtubes        | 5089827   |
| D4202-1       | Spacer                  | 20 Ea (20 ea) | 140-Skiddtubes        | 5121423   |
| ALS7-1032-130 | Rivnut                  | 50 Ea (50 ea) | 200-HandFinish        | 5112899   |
| AN3-5A        | Bolt                    | 2 Ea (2 ea)   | 200-HandFinish        | 5095480   |
| AN3C4A        | Bolt                    | 50 Ea (50 ea) | 200-HandFinish        | 5095223   |
| D2594-1       | Plug                    | 16 Ea (16 ea) | 200-HandFinish        | 5170401   |
| D2594-3       | O-Ring                  | 16 Ea (16 ea) | 200-HandFinish        | 5106742   |
| D2855         | Cap                     | 1 Ea (1 ea)   | 200-HandFinish        | 5066019   |
| D3564-11      | Wearplate Aft           | 1 Ea (1 ea)   | 200-HandFinish        | 5108075   |
| D3564-13      | Wearpad Fwd             | 1 Ea (1 ea)   | 200-HandFinish        | 5107996   |
| D3564-5       | Wearplate Center        | 1 Ea (1 ea)   | 200-HandFinish        | 5107249   |
| D3564-9       | Wearplate Fwd           | 1 Ea (1 ea)   | 200-HandFinish        | 5120429   |
| NAS1149C0332R | Washer                  | 50 Ea (50 ea) | 200-HandFinish        | 5089465   |
| NAS1149D0332J | Washer                  | 2 Ea (2 ea)   | 200-HandFinish        | 5100407   |

### Job Allocations

| Operation             | Component Part | Required | Inventory | Allocated |
|-----------------------|----------------|----------|-----------|-----------|
| 90-Start up Operation | D2580-1        | 1        | 4         | 0         |
| 140-Skiddtubes        | D2576-3        | 1        | 43        | 0         |
|                       | D4202-1        | 20       | 157       | 0         |
| 200-HandFinish        | ALS7-1032-130  | 50       | 1,867     | 0         |
|                       | AN3-5A         | 2        | 266       | 0         |
|                       | AN3C4A         | 50       | 2,094     | 0         |
|                       | D2594-1        | 16       | 40        | 0         |
|                       | D2594-3        | 16       | 552       | 0         |
|                       | D2855          | 1        | 45        | 0         |
|                       | D3564-11       | 1        | 23        | 0         |
|                       | D3564-13       | 1        | 19        | 0         |
|                       | D3564-5        | 1        | 14        | 0         |
|                       | D3564-9        | 1        | 13        | 0         |
|                       | NAS1149C0332R  | 50       | 3,734     | 0         |
|                       | NAS1149D0332J  | 2        | 2,171     | 0         |

### Part Specifications

1210 AUGUST 11, 2011  
 Hawkesbury, ON K6A 1K7  
 CANADA  
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 www.dartaerospace.com

**DAKI**  
 AEROSPACE

Container No: S125702

Part: D205-634-041

Job No: 134821

Serial No/Batch: S125702

Revision: H

Inspector:

Exp Date:

Instructions: TC STC SH96-88 Issue 3a FAAS TC SR00563NY 08/08/11, EASA S

unessse.marie



^ DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                            |                                                |                                               |
|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------|-----------------------------------------------|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |                                                            |                                                |                                               |
| Date :                                                       | Step #:                                                                                                                                                                            | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                            | MRB (QSI042) Approval                          |                                               |
| Description Work Order Deviation                             |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Disposition                                                |                                                |                                               |
|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Completed By                                               |                                                |                                               |
|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Lead hand / Supervisor<br>Approval Verification            |                                                |                                               |
|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | QC / QA Coordinator<br>Approval                            |                                                |                                               |
| Root Cause                                                   |                                                                                                                                                                                    | FAULT CATEGORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                            |                                                |                                               |
| Environment <input type="checkbox"/>                         | No Re-verification <input type="checkbox"/>                                                                                                                                        | Pressure/Forced <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Temperature/Cure <input type="checkbox"/>                  | Power Loss/Surge <input type="checkbox"/>      | Positioned Wrong <input type="checkbox"/>     |
| Design <input type="checkbox"/>                              | Operator <input type="checkbox"/>                                                                                                                                                  | Bending <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Set-up <input type="checkbox"/>                            | Folio/Program <input type="checkbox"/>         | Outside Dimensions <input type="checkbox"/>   |
| Doc/Data <input type="checkbox"/>                            | Offset/Setup <input type="checkbox"/>                                                                                                                                              | Centre Not Concentric <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | BOM/Route <input type="checkbox"/>                         | Grain <input type="checkbox"/>                 | Over/Under tolerance <input type="checkbox"/> |
| Equip/Tooling <input type="checkbox"/>                       | Supplier <input type="checkbox"/>                                                                                                                                                  | Cracks <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Broken/Damage/Defect <input type="checkbox"/>              | Weld <input type="checkbox"/>                  | Part Incorrect <input type="checkbox"/>       |
| Handling/Pre <input type="checkbox"/>                        | Training <input type="checkbox"/>                                                                                                                                                  | Crimp/Kink/Ripple/Wave <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/>    | Part Lost/Missing <input type="checkbox"/>    |
| Material <input type="checkbox"/>                            | Use for Testing <input type="checkbox"/>                                                                                                                                           | Cuffs <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Contamination <input type="checkbox"/>                     | Out of Sequence <input type="checkbox"/>       | Part Moved <input type="checkbox"/>           |
| Internal Transport <input type="checkbox"/>                  | Poor Information <input type="checkbox"/>                                                                                                                                          | Crushing <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Countersink <input type="checkbox"/>                       | Off-set <input type="checkbox"/>               | Drawing <input type="checkbox"/>              |
| Tribal Knowledge <input type="checkbox"/>                    | Rushing <input type="checkbox"/>                                                                                                                                                   | Heat Treat <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Cut Too Short <input type="checkbox"/>                     | Mislabeled <input type="checkbox"/>            | Finish <input type="checkbox"/>               |
| LOA <input type="checkbox"/>                                 | Product Improvement <input type="checkbox"/>                                                                                                                                       | Wave/Twist in Tube <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Instructions Incomplete/Unclear <input type="checkbox"/>   | Fit/Function <input type="checkbox"/>          | Misread <input type="checkbox"/>              |
| Substation <input type="checkbox"/>                          | Process Improvement <input type="checkbox"/>                                                                                                                                       | Marks/Chatter <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/> | Turning Sequence <input type="checkbox"/>     |
| Past Expiry Date <input type="checkbox"/>                    | Manufacturing Process <input type="checkbox"/>                                                                                                                                     | OTHER : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                            |                                                |                                               |
| Misidentified <input type="checkbox"/>                       | Past Due <input type="checkbox"/>                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                            |                                                |                                               |



| ITEM | QTY<br>-041 | QTY<br>-045 | QTY<br>-047 | QTY<br>-049 | PART NUMBER                                                               | DESCRIPTION        |
|------|-------------|-------------|-------------|-------------|---------------------------------------------------------------------------|--------------------|
| 1    | X           |             |             |             | D2580-041                                                                 | SKIDTUBE ASSEMBLY  |
| 2    |             | X           |             |             | D2580-045                                                                 | SKIDTUBE ASSEMBLY  |
| 3    |             |             | X           |             | D2580-047                                                                 | SKIDTUBE ASSEMBLY  |
| 4    |             |             |             | X           | D2580-049                                                                 | SKIDTUBE ASSEMBLY  |
| 20   | 1           | 1           | 1           | 1           | D2500-1-190                                                               | EXTRUSION          |
| 21   |             |             | 16          | 16          | D2570                                                                     | BUSHING            |
| 22   | 1           | 1           | 1           | 1           | D2576-3                                                                   | STEP               |
| 23   |             | 4           |             |             | D2579                                                                     | SPACER             |
| 24   | 16          | 16          | 8           | 8           | D2594-1                                                                   | PLUG               |
| 25   | 16          | 16          | 8           | 8           | D2594-3                                                                   | O-RING             |
| 26   | 1           | 1           | 1           | 1           | D2596                                                                     | 205 WEB            |
| 27   | 1           | 1           | 1           | 1           | D2855                                                                     | AFT CAP            |
| 28   | 1           | 1           |             |             | D3564-5                                                                   | WEARSHOE           |
| 29   | 1           | 1           |             |             | D3564-9                                                                   | WEARSHOE           |
| 30   | 1           | 1           |             |             | D3564-11                                                                  | WEARSHOE           |
| 31   | 1           | 1           |             |             | D3564-13                                                                  | WEARSHOE           |
| 32   | 20          | 20          | 24          | 24          | D4202-1                                                                   | SPACER             |
| 33   |             |             | 1           |             | D4406-041                                                                 | WEARPLATE ASSEMBLY |
| 34   |             |             | 1           |             | D4406-043                                                                 | WEARPLATE ASSEMBLY |
| 35   |             |             |             | 1           | D5061-1                                                                   | FWD WEARPLATE      |
| 36   |             |             |             | 1           | D5061-3                                                                   | AFT WEARPLATE      |
| 50   | 50          | 50          |             |             | ALS7-1032-130<br>or AKS7-1032-130<br>or AKS4-1032-130<br>or AELS-1032-130 | INSERT             |
| 51   | 50          | 50          |             |             | AN3C4A                                                                    | BOLT               |
| 52   | 2           | 2           | 2           | 2           | AN3-5A                                                                    | BOLT               |
| 53   |             |             | 8           | 8           | AN4-45A                                                                   | BOLT               |
| 54   | 50          | 50          |             |             | NAS1149C0332R                                                             | WASHER (AN980C10L) |
| 55   | 2           | 2           | 2           | 2           | NAS1149D0332J                                                             | WASHER (AN980J10L) |
| 56   |             |             | 8           | 8           | MS21042-4                                                                 | NUT (OR MS21042L4) |

#### GENERAL NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB  
POWDER COAT (-041/-047/-049) GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3  
POWDER COAT (-045) GREEN SANDTEX (REF 4.3.5.8) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4.
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: D2580-041 = 33.7 lbs  
D2580-045 = 33.7 lbs  
D2580-047 = 45.1 lbs  
D2580-049 = 32.0 lbs
- 8) WELDING PER DART QSI 004.
- 9) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 10) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 11) USE DART DRILL TEMPLATE DT8217 & DT8837 ONLY FOR D2580-041/-045 TO LOCATE AND DRILL Ø0.287 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTIONS B-B AND F-F (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS WITH SIKAFLEX-241-291.
- 12) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES FOR D2580-041/-045 AND 8 PLACES FOR D2580-047/-049)
- 13) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

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|            |                                                                                                                                                           |     |          |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------|
| H          | SHEET: PL DELETE D3566-1/-5/-13 GASKETS, WEIGHTS UPDATED ACCORDINGLY. SHEETS 2 & 4 PICTORIAL UPDATE FOR REMOVAL OF GASKETS                                | SAD | 17.06.09 |
| G          | ADDED -049, -047 WEIGHT UPDATED PER DSI 9596                                                                                                              | AJS | 14.04.09 |
| F          | INCORPORATE DEO D2580-E-1 PER PAR12-218                                                                                                                   | DC  | 13.06.20 |
| E          | ADD D2580-047 (ZN C4-7) AND D2580-7 (ZN B3-8); INCLUDED DEO D2580-D-1; REFORMATTED DRAWING TO CURRENT STANDARDS; DT8217 & DT8837 WAS TD2577-205 (ZN C4-1) | RF  | 11.06.21 |
| D          | CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/ 9183                                                                                               | PH  | 07.04.06 |
| C          | REDRAWN, INCLUDED DEO 9094/ 9097                                                                                                                          | CP  | 06.06.26 |
| B          | AS MANUFACTURED                                                                                                                                           | DS  | 06.12.02 |
| A          | NEW ISSUE                                                                                                                                                 | DS  | 06.09.16 |
| REV.       | DESCRIPTION                                                                                                                                               | BY  | DATE     |
| DESIGN     | DS                                                                                                                                                        |     |          |
| DRAWN      | SAD                                                                                                                                                       |     |          |
| CHECKED    | <i>[Signature]</i>                                                                                                                                        |     |          |
| MFG. APPR. | <i>[Signature]</i>                                                                                                                                        |     |          |
| APPROVED   | <i>[Signature]</i>                                                                                                                                        |     |          |
| DE APPR.   | <i>[Signature]</i>                                                                                                                                        |     |          |
| DATE       | 17.06.09                                                                                                                                                  |     |          |

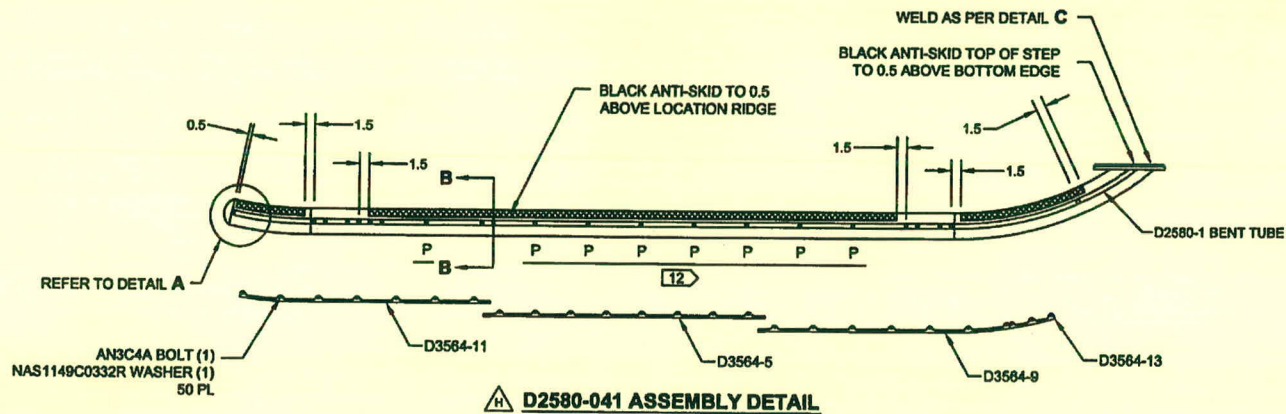
**DART AEROSPACE LTD**  
HAWKESBURY, ONTARIO, CANADA

DRAWING NO.  
D2580  
TITLE  
205 SKIDTUBE ASSEMBLY  
REV. H  
SHEET 1 OF 9  
SCALE  
NTS

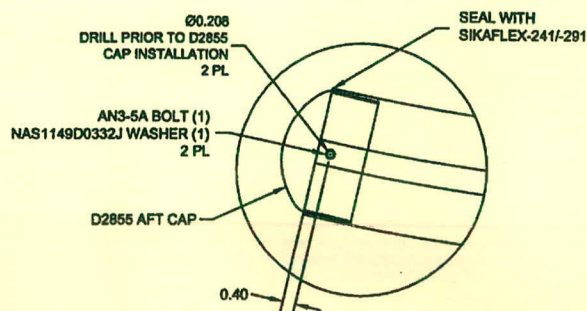
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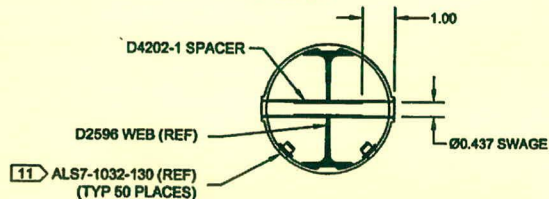




**DETAIL A**  
SCALE 5X

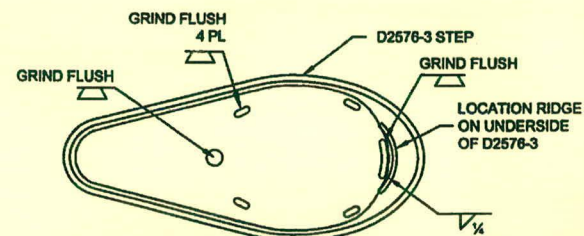


**SECTION B-B**  
SCALE 5X



AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:  
1. INSERT D4202-1 SPACER (20 PLACES)  
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002  
3. TRIM / GRIND FLUSH PER QSI 002

**DETAIL C**  
SCALE 5X



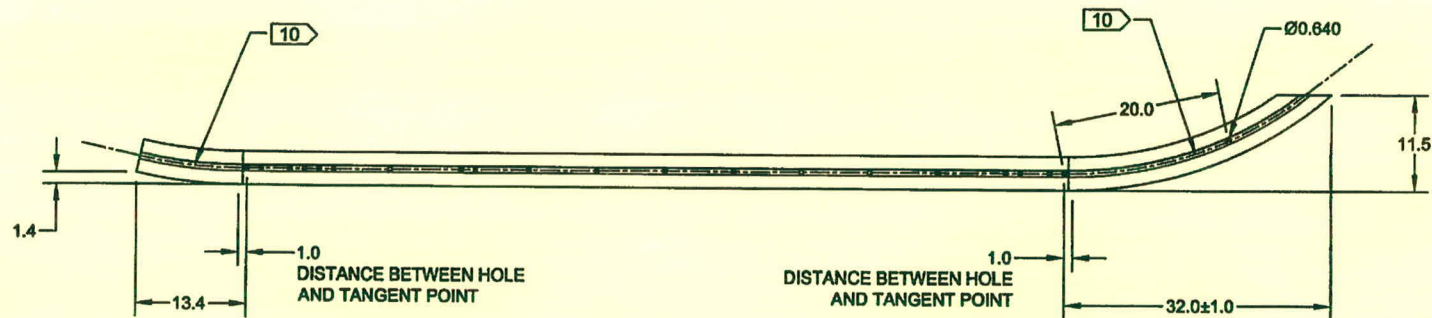
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| CHECKED    | <i>[Signature]</i> | DRAWING NO.                                                                                                                                                                                                                                                                   | REV. H       |
| MFG. APPR. | <i>[Signature]</i> | D2580                                                                                                                                                                                                                                                                         | SHEET 2 OF 9 |
| APPROVED   | <i>[Signature]</i> | TITLE                                                                                                                                                                                                                                                                         | SCALE        |
| DE APPR.   | <i>[Signature]</i> | 205 SKIDTUBE ASSEMBLY                                                                                                                                                                                                                                                         | NTS          |
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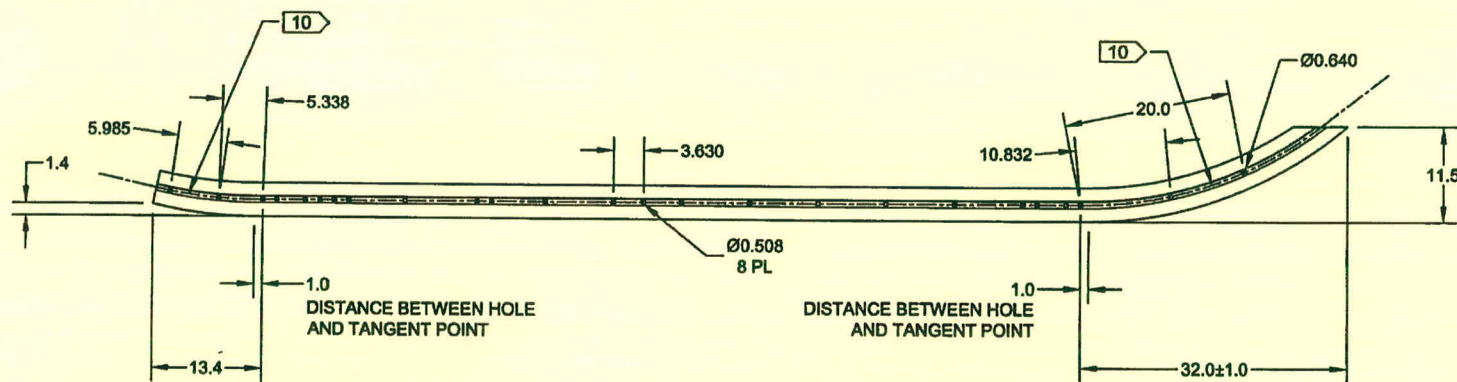
**D2580-1 BENT TUBE**  
(MAKE FROM D2580-101 TUBE)

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| MFG. APPR. | <i>[Signature]</i> | TITLE<br>205 SKIDTUBE ASSEMBLY                                                                                                                                                                                                                                                     | SCALE<br>NTS           |
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**D2580-7 BENT TUBE**  
(MAKE FROM D2580-101 TUBE)

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| MFG. APPR. | <i>[Signature]</i> | TITLE<br>205 SKIDTUBE ASSEMBLY                                                                                                                                                                                                                                                | SCALE<br>NTS           |
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